WHAT IS CLAIMED IS:

1. A process for forming a small diameter elongated device for use in a medical procedure comprising forming a male end at an extremity of a first elongated member formed of a first continuous material, forming a female end at an extremity formed of a second continuous material, and permanently securing the male end of the first elongated member within the female end of the second elongated member.

2. The process of claim 1 wherein formation of the female end comprises forming a hole by electrical discharge machining.

3. The process of claim 1 wherein formation of the female end comprises forming a hole by laser drilling.

4. The process of claim 1 wherein the first continuous material is different from the second continuous material.

5. The process of claim 1 wherein the first and second continuous materials comprise a biocompatible materials selected from the group consisting of metals, polymers and composites.

6. The process of claim 5 wherein the group consists of stainless steel and Nitinol.

7. The process of claim 1 wherein securing the male end to the female end is selected from the group consisting of soldering, welding and gluing.

8. The process of claim 1 wherein forming the male end comprises plunge grinding.

9. A small diameter elongated device for use in a medical procedure comprising a first elongated member having a male end at an extremity formed of a first continuous material permanently secured within a female end at an extremity of a second elongated member, the extremity of the second elongated member formed of a second continuous material, which is permanently secured within a female end of a second elongated member.

10. The elongated device of claim 9 wherein the female end is formed by electrical discharge machining.

11. The elongated device of claim 9 wherein the female end is formed by laser drilling.

12. The elongated device of claim 9 wherein the first and second continuous materials comprise biocompatible materials selected from the group consisting of metals, polymers and composites.

13. The elongated device of claim 12 wherein the group consists of stainless steel and Nitinol.

14. The elongated device of claim 9 wherein the male end is secured to the female end by a bond selected from the group consisting of solder, weld and glue.

15. The elongated device of claim 9 wherein the male end is formed by plunge grinding.

16. A guidewire comprising an elongated proximal core portion having a female end disposed at a distal extremity of the proximal core portion formed from a first continuous material; a distal core portion having a male end disposed at a proximal extremity of distal core portion, with the male end permanently secured within the female end; and a flexible body member disposed about and secured to the distal core portion.

17. A guidewire comprising an elongated proximal core portion having a male end disposed at a distal extremity of the proximal core portion formed from a first continuous material, a distal core portion having a female end disposed at a proximal extremity formed from a second continuous material, with the male end permanently secured within the female end; and a flexible body member disposed about and secured to the distal core portion.